

# **EXPEDITED RULE MAKING**

CR-105 (June 2004)
(Implements RCW 34.05.353)
EXPEDITED RULE MAKING ONLY

Agency: State Building Code Council	
Title of rule and other identifying information: (Describe Subject)	
Editorial changes to WAC 51-11R, 2012 Washington State Energy Code	- Residential
NOTIC	E
THIS RULE IS BEING PROPOSED UNDER AN EXPEDITED RU NEED FOR THE AGENCY TO HOLD PUBLIC HEARINGS, PRESTATEMENT, OR PROVIDE RESPONSES TO THE CRITERIA FOR OBJECT TO THIS USE OF THE EXPEDITED RULE-MAKING PROVIDED AND THEY MUST BE SENT TO	PARE A SMALL BUSINESS ECONOMIC IMPACT FOR A SIGNIFICANT LEGISLATIVE RULE. IF YOU
Name: Ray Allshouse, Chair	
Agency: State Building Code Counc	cil
Address: PO Box 41449, Olympia	WA 98504-1449
AND RECEIVED BY (Date) July 22, 2014	
Purpose of the proposal and its anticipated effects, including any ch	nanges in existing rules:
Makes editorial changes to the following sections of the residential	energy portion of the Washington State Energy Code:
Table R303.1.3(2): Footnote c was removed from the table. This footnote	applied to information removed in 2009 and is now irrelevant.
Section R402.4.3: Exceptions 2 and 3 were duplicative and were combined	ed into a single item.
Table R406.2, item 3a. An allowance for a 92% AFUE boiler was replaced the previous code.	d in the high efficiency HVAC option. This option was included in
Reasons supporting proposal:	
Some editorial errors were identified in the rules filed under WSR 13-04-055. The	is rule corrects those errors.
Statutory authority for adoption: RCW 19.27A.025, 19.27A.045	Statute being implemented: RCW 19.27, 19.27A and 34.05
Is rule necessary because of a: Federal Law? Federal Court Decision? State Court Decision? If yes, CITATION:  Yes No Yes No	CODE REVISER USE ONLY
<b>DATE</b> May 11, 2014	
NAME (TYPE OR PRINT) C. Ray Allshouse	
SIGNATURE Chay Calling	
TITLE Council Chair	

Name of propo	onent: (person or organizati	ion) State Building Code Council	☐ Private ☐ Public ☑ Governmental
Name of agend	cy personnel responsible	for:	
	Name	Office Location	Phone
Drafting		PO Box 41449, Olympia WA 98504-1449	(360)407-9278
Implementation		PO Box 41449, Olympia WA 98504-1449	(360)407-9278
	Local jurisdictions		( )
Agency comm matters: None.	ents or recommendations	s, if any, as to statutory language, implement	ntation, enforcement, and fiscal

7/1/13)

## WAC 51-11R-30312 Table R303.1.3(2)—Default door *U*-factors.

TABLE R303.1.3(2)

#### DEFAULT DOOR U-FACTORS

Door Type	No Glazed Fenestration	Single Glazing	Double Glazing with 1/4 in. Airspace	Double Glazing with 1/2 in. Airspace	Double Glazing with e = 0.10, 1/2 in. Argon
	ORS (Rough open	ing - 38 in. x	82 in.)		
Slab Doors		1	T.		
Wood slab in wood frame <sup>a</sup>	0.46				
6% glazed fenestration (22 in. x 8 in. lite)	-	0.48	0.47	0.46	0.44
25% glazed fenestration (22 in. x 36 in. lite)	-	0.58	0.48	0.46	0.42
45% glazed fenestration (22 in. x 64 in. lite)	-	0.69	0.49	0.46	0.39
More than 50% glazed fenestration	Use Table R303.1.3(1)				
Insulated steel slab with wood edge in wood frame <sup>a</sup>	0.16				
6% glazed fenestration (22 in. x 8 in. lite)	-	0.21	0.20	0.19	0.18
25% glazed fenestration (22 in. x 36 in. lite)	-	0.39	0.28	0.26	0.23
45% glazed fenestration (22 in. x 64 in. lite)	-	0.58	0.38	0.35	0.26
More than 50% glazed fenestration	Use Table R303.1.3(1)				
Foam insulated steel slab with metal edge in steel frame <sup>b</sup>	0.37				
6% glazed fenestration (22 in. x 8 in. lite)	-	0.44	0.42	0.41	0.39
25% glazed fenestration (22 in. x 36 in. lite)	-	0.55	0.50	0.48	0.44
45% glazed fenestration (22 in. x 64 in. lite)	-	0.71	0.59	0.56	0.48
More than 50% glazed fenestration	Use Table R303.1.3(1)				
Cardboard honeycomb slab with metal edge in steel frame <sup>b</sup>	0.61				
Style and Rail Doors	1		•	1	
Sliding glass doors/French doors	Use Table R303.1.3(1)				

Door Type	No Glazed Fenestration	Single Glazing	Double Glazing with 1/4 in. Airspace	Double Glazing with 1/2 in. Airspace	Double Glazing with e = 0.10, 1/2 in. Argon
Site-Assembled Style and Rail Doors					
Aluminum in aluminum frame	-	1.32	0.99	0.93	0.79
Aluminum in aluminum frame with thermal break	-	1.13	0.80	0.74	0.63

Note:

[Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-30312, filed 2/1/13, effective 7/1/13.1

AMENDATORY SECTION (Amending WSR 13-04-055, filed 2/1/13, effective 7/1/13)

### WAC 51-11R-40240 Section R402.4-Air leakage.

R402.4 Air leakage (Mandatory). The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections R402.4.1 through R402.4.4.

R402.4.1 Building thermal envelope. The building thermal envelope shall comply with Sections R402.4.1.1 and R402.4.1.2. The sealing methods between dissimilar materials shall allow for differential expansion and contraction.

Appendix A Tables A107.1(2) through A107.1(4) may also be used if applicable. Thermally broken sill (add 0.03 for nonthermally broken sill).

Nonthermally broken sill.

<sup>((\*</sup> Nominal *U*-factors are through the center of the insulated panel before consideration of thermal bridges around the edges of the door section and due to the frame.))

envelope as listed in Table R402.4.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria listed in Table R402.4.1.1, as applicable to the method of construction. Where required by the code official, an approved third party shall inspect all components and verify compliance.

R402.4.1.2 Testing. The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding 5 air changes per hour. Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pascals). Where required by the code official, testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope. Once visual inspection has confirmed sealing (see Table R402.4.1.1), operable windows and doors manufactured by small business shall be permitted to be sealed off at the frame prior to the test.

During testing:

- 1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures;
- 2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures;
- 3. Interior doors, if installed at the time of the test, shall be open, access hatches to conditioned crawl spaces and conditioned attics shall be open;
- 4. Exterior openings for continuous ventilation systems and heat recovery ventilators shall be closed and sealed;
- 5. Heating and cooling systems, if installed at the time of the test, shall be turned off; and
- 6. Supply and return registers, if installed at the time of the test, shall be fully open.
- R402.4.2 Fireplaces. New wood-burning fireplaces shall have tightfitting flue dampers and outdoor combustion air.
- R402.4.3 Air leakage of fenestration. Windows, skylights and sliding glass doors shall have an air infiltration rate of no more than 0.3 cfm per square foot  $(1.5 \text{ L/s/m}^2)$ , and swinging doors no more than 0.5 cfm per square foot  $(2.6 \text{ L/s/m}^2)$ , when tested according to NFRC 400 or

AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory and listed and labeled by the manufacturer.

EXCEPTIONS:

1. Field-fabricated fenestration products (windows, skylights and doors).

1. Field-fabricated fenestration products (windows, skylights and doors).
2. Custom exterior fenestration products manufactured by a small business provided they meet the applicable provisions of Chapter 24 of the *International Building Code*. Once visual inspection has confirmed the presence of a gasket, operable windows and doors manufactured by small business shall be permitted to be sealed off at the frame prior to the test.

((3. Custom exterior windows and doors manufactured by a small business provided they meet the applicable provisions of chapter 24 of the *International Building Code*. Once visual inspection has confirmed the presence of a gasket, operable windows and doors manufactured by small business shall be permitted to be sealed off at the frame prior to the test.))

R402.4.4 Recessed lighting. Recessed luminaires installed in the building thermal envelope shall be Type IC-rated and certified under ASTM E283 as having an air leakage rate not more than 2.0 cfm (0.944 L/s) when tested at a 1.57 psf (75 Pa) pressure differential and shall have a label attached showing compliance with this test method. All recessed luminaires shall be sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.

[Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40240, filed 2/1/13, effective 7/1/13.1

AMENDATORY SECTION (Amending WSR 13-20-121, filed 10/1/13, effective 11/1/13)

WAC 51-11R-40621 Table R406.2-Energy credits.

TABLE 406.2

### ENERGY CREDITS (DEBITS)

OPTION	DESCRIPTION	CREDIT(S)
1a	EFFICIENT BUILDING ENVELOPE	0.5
	la: Prescriptive compliance is based on Table R402.1.1 with the following modifications: Fenestration U = 0.28 Floor R-38	
	Slab on grade R-10 perimeter and under entire slab	
	Below grade slab R-10 perimeter and under entire slab	
	Compliance based on Section R402.1.4: Reduce the Total UA by 5%.	
1b	EFFICIENT BUILDING ENVELOPE 1b:	1.0
	Prescriptive compliance is based on Table R402.1.1 with the following modifications:	
	Fenestration U = 0.25 Wall R-21 plus R-4 Floor R-38	
	Basement wall R-21 int plus R-5 ci Slab on grade R-10 perimeter and under entire slab	
	Below grade slab R-10 perimeter and under entire slab	
	Compliance based on Section R402.1.4: Reduce the Total UA by 15%.	
1c	EFFICIENT BUILDING ENVELOPE 1c: Prescriptive compliance is based on	2.0
	Table R402.1.1 with the following modifications: Fenestration U = 0.22 Ceiling and single-rafter or joist-vaulted R-49 advanced Wood frame wall R-21 int plus R-12 ci Floor R-38	
	Basement wall R-21 int plus R-12 ci Slab on grade R-10 perimeter and under entire slab Below grade slab R-10 perimeter and	
	under entire slab or Compliance based on Section R402.1.4:	
2	Reduce the Total UA by 30%.	0.5
2a	AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION 2a: Compliance based on R402.4.1.2: Reduce the tested air leakage to 4.0 air changes per hour maximum and All whole house ventilation	0.5
	requirements as determined by Section M1507.3 of the International Residential Code shall be met with a	
	high efficiency fan (maximum 0.35 watts/cfm), not interlocked with the furnace fan. Ventilation systems using a	
	furnace including an ECM motor are allowed, provided that they are controlled to operate at low speed in ventilation only mode.	
	To qualify to claim this credit, the building permit drawings shall specify	
	the option being selected and shall specify the maximum tested building air leakage and shall show the qualified ventilation system.	

OPTION	DESCRIPTION	CREDIT(S)
2b	AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION 2b: Compliance based on Section R402.4.1.2: Reduce the tested air leakage to 2.0 air changes per hour maximum and All whole house ventilation requirements as determined by Section M1507.3 of the <i>International Residential Code</i> shall be met with a heat recovery ventilation system with minimum sensible heat recovery efficiency of 0.70. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the maximum tested building air leakage and shall show the heat recovery ventilation system.	1.0
2c	AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION 2c: Compliance based on Section R402.4.1.2: Reduce the tested air leakage to 1.5 air changes per hour maximum and All whole house ventilation requirements as determined by Section M1507.3 of the International Residential Code shall be met with a heat recovery ventilation system with minimum sensible heat recovery efficiency of 0.85. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the maximum tested building air leakage and shall show the heat recovery ventilation system.	1.5
3a	HIGH EFFICIENCY HVAC EQUIPMENT 3a: Gas, propane or oil-fired furnace with minimum AFUE of 95% or gas, propane or oil-fired boiler with minimum AFUE of 92%. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.	0.5
3b	HIGH EFFICIENCY HVAC EQUIPMENT 3b: Air-source heat pump with minimum HSPF of 8.5 To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.	1.0
3c	HIGH EFFICIENCY HVAC EQUIPMENT 3c: Closed-loop ground source heat pump; with a minimum COP of 3.3  or Open loop water source heat pump with a maximum pumping hydraulic head of 150 feet and minimum COP of 3.6 To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.	2.0

OPTION	DESCRIPTION	CREDIT(S)
3d	HIGH EFFICIENCY HVAC EQUIPMENT 3d: DUCTLESS SPLIT SYSTEM HEAT PUMPS, ZONAL CONTROL: In homes where the primary space heating system is zonal electric heating, a ductless heat pump system shall be installed and provide heating to at least one zone of the housing unit. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.	1.0
4	HIGH EFFICIENCY HVAC DISTRIBUTION SYSTEM: All heating and cooling system components installed inside the conditioned space. All combustion equipment shall be direct vent or sealed combustion. Locating system components in conditioned crawl spaces is not permitted under this option. Electric resistance heat is not permitted under this option. Direct combustion heating equipment with AFUE less than 80% is not permitted under this option. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and shall show the location of the heating and cooling equipment and all the ductwork.	1.0
5a	EFFICIENT WATER HEATING 5a: Water heating system shall include one of the following: Gas, propane or oil water heater with a minimum EF of 0.62 or Electric water heater with a minimum EF of 0.93. and for both cases All showerhead and kitchen sink faucets installed in the house shall be rated at 1.75 GPM or less. All other lavatory faucets shall be rated at 1.0 GPM or less. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the water heater equipment type and the minimum equipment efficiency and shall specify the maximum flow rates for all showerheads, kitchen sink faucets, and other lavatory faucets.	0.5

OPTION	DESCRIPTION	CREDIT(S)
5b	EFFICIENT WATER HEATING 5b: Water heating system shall include one of the following: Gas, propane or oil water heater with a minimum EF of 0.82	1.5
	or Solar water heating supplementing a minimum standard water heater. Solar water heating will provide a rated minimum savings of 85 therms or 2000 kWh based on the Solar Rating and Certification Corporation (SRCC) Annual Performance of OG-300 Certified Solar Water Heating Systems or Electric heat pump water heater with a minimum EF of 2.0 and meeting the standards of NEEA's Northern Climate Specifications for Heat Pump Water Heaters	
	Water heater heated by ground source heat pump meeting the requirements of Option 3c. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the water heater equipment type and the minimum equipment efficiency and, for solar water heating systems, the calculation of the minimum energy savings.	
6	RENEWABLE ELECTRIC ENERGY: For each 1200 kWh of electrical generation provided annually by on-site wind or solar equipment a 0.5 credit shall be allowed, up to 3 credits. Generation shall be calculated as follows: For solar electric systems, the design shall be demonstrated to meet this requirement using the National Renewable Energy Laboratory calculator PVWATTs. Documentation noting solar access shall be included on the plans. For wind generation projects designs shall document annual power generation based on the following factors: The wind turbine power curve; average annual wind speed at the site; frequency distribution of the wind speed at the site and height of the tower. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall show the photovoltaic or wind turbine equipment type, provide documentation of solar and wind access, and include a calculation of the minimum annual	0.5

Footnotes:

\*Interior Duct Placement. Ducts included as Option 4 of Table R406.2 shall be placed wholly within the heated envelope of the housing unit. The placement shall be inspected and certified to receive the credits associated with this option.

Ducts complying with this section may have up to 5% of the total linear feet of ducts located in the exterior cavities or buffer spaces of the dwelling. If this exception is used the ducts will be tested to the following standards:

Post-construction test: Leakage to outdoors shall be less than or equal to 1 CFM per 100 ft² of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test.

EXCEPTION:

books shall be taped to test.

b **Plumbing Fixtures Flow Ratings.** Low flow plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following requirements:

1 Residential bathroom lavatory sink faucets: Maximum flow rate - 3.8 L/min (1.0 gal/min) when tested in accordance with ASME A112.18.1/CSA B125.1.

2 Residential kitchen faucets: Maximum flow rate 6.6 L/min (1.75 gal/min) when tested in accordance with ASME A112.18.1/CSA B125.1. 3 Residential showerheads: Maximum flow rate - 6.6 L/min (1.75 gal/min) when tested in accordance with ASME A112.18.1/CSA B125.1.

[Statutory Authority: RCW 19.27A.025, 19.27A.045, and 19.27.074. WSR 13-20-121, § 51-11R-40621, filed 10/1/13, effective 11/1/13. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40621, filed 2/1/13, effective 7/1/13.]